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REMARKS

Applicant wishes to thank the Examiner for considering the present application. Claims 1-34 are pending in the application. Applicant respectfully requests the Examiner to reconsider the rejections.

The Examiner has restricted the claims to two groups: Group I to claims 1-21, 23, 25-34, and Group II to claims 22, 24. Applicant affirms the election of Group I to claims 1-21, 23, 25-34.

Claims 5, 7 and 9-11 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 5, 7, 9, 10, and 11 have been amended to provide antecedent basis. Applicant believes that the amendments overcome this rejection.

Claims 1, 3, 6-7, 9-13, 17, 19-21, 23 and 25-34 stand rejected under 35 U.S.C. §102(e) as being unpatentable over *Castiel* (U.S. Patent Application 2002/0160710). Applicant respectfully traverses.

Claim 1 is directed to a communications system that includes a plurality of regional ground stations and a plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth. The satellites operate in a service area in a synchronized manner to provide continuous coverage to the service area. The satellites generate a plurality of beams with variable beam widths to provide a substantially uniform cell size covering the service area. The system further includes a plurality of user terminals within the service area receiving communication signals from the satellite. The *Castiel* reference is directed to a communications system that admittedly includes elliptical sub-geosynchronous orbits that provide coverage to a service area. The Examiner states that the *Castiel* reference includes "said satellite generating a plurality of beams with variable beam widths to obtain a substantially uniform cell size covering said service area." The Examiner directs the Applicant to Fig. 1, paragraphs 3, 4, 62, and 68. Applicant has reviewed these sections and can find no teaching or suggestion of variable

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beam widths. In the present application, as in the *Castiel* reference, the satellites are not stationary in their orbits. Thus, the satellites move relative to the earth. As would be evident to those skilled in the art, the size of a fixed beam from a satellite would vary as the distance from the earth varies. It is desirable in satellite systems to provide certainty for the size of a coverage area. Therefore, the present invention employs variable beam widths to obtain a substantially uniform cell size covering the service area. The portions of the *Castiel* reference pointed to by the Examiner does not teach or suggest varying the beam width size. In fact, the *Castiel* reference teaches the satellites are similar to geosynchronous satellites. This implies that the beams are not changed since fixed beams are used in geostationary applications. Applicant therefore respectfully requests the Examiner to reconsider the rejection with respect to independent claims 1, 12, 25, and 32. Likewise, dependent claims 3, 6-7, 9-11, 13, 17, 19-21, 23, 27-31, and 33-34 should also be allowable for the same reasons set forth above.

Claims 4-5 and 14-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Castiel* in view of *Taormina* (6,257,526).

Because the *Taormina* reference also does not describe variable beam widths, Applicant respectfully requests the Examiner for reconsideration of this rejection as well.

The *Taormina* reference describes a first deployment of a plurality of satellites in a medium earth orbit and later deployments of pluralities of satellites in the medium earth orbit. If demand on the satellite constellation is increased further, more medium earth satellites may be deployed. However, if spacing between the MEO satellites becomes too small, the satellites may be deployed in an inclined orbit 38. (See for example Abstract and col. 5, lines 24-40.) Although sub-geosynchronous orbits are described, the *Taormina* reference neither teaches nor suggests, for example, "a plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth, said satellites operating in a service area in a synchronized manner to provide continuous coverage to said service area." The Applicant agrees with the Examiner in

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his assessment in the last office action that variable beam widths to obtain a substantially uniform cell size is not shown in *Taormina*.

Claims 8 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Castiel* in view of *Schloemer* (RE37140).

Claims 8 and 18 recite disabling a satellite when it is coextensive with a geostationary orbit. Although the Examiner alleges that, "Schloemer discloses the satellites are disabled when coextensive with a geostationary orbit (see col.2, lines 45-50)", the *Schloemer* reference merely discusses satellites that accidentally end up in an improper orbit and ground control systems to insure that all satellite stay in correct orbits "and to disable a satellite when it is not in the proper grid orbit". This neither teaches nor suggests disabling a satellite when coextensive with a geostationary orbit, as would happen for example in a defined GSO Crossing Zone. Furthermore, it is respectfully submitted that Claims 8 and 18 are allowable over these references since the *Schloemer* reference does not cure the deficiencies of the teachings of the other references as discussed earlier in connection with Claims 1 and 12 and therefore Claims 8 and 18 are allowable generally for the same reasons discussed in connection with Claims 1 and 12 and further due to the additional limitations recited therein.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Castiel* in view of *Byrne et al.* (U.S. Patent No. 5,990,883).

It is respectfully submitted that Claim 2 is allowable over these references since the *Byrne* reference does not cure the deficiencies of the teachings of the *Castiel* reference as discussed earlier in connection with Claim 1.

Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Castiel* in view of *Wainfan et al.* (U.S. Patent No. 6,339,707).

Claim 16 depends from Claim 12. Claim 16 is believed to be allowable for generally the same reasons discussed above in connection with Claim 12 and further due to the additional limitations recited therein. The *Wainfan* reference does not cure the deficiencies of the teachings of *Castiel* references as discussed earlier in connection with Claim 12.

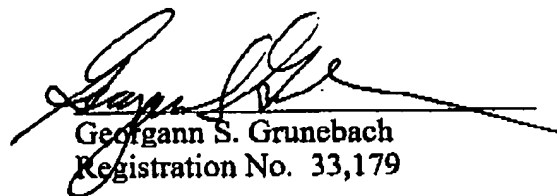
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In light of the remarks above, Applicant submits that all rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments which would place the application in better condition for allowance, he is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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Date: May 26, 2004
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